2nd Seminar on Data Science, The Plazzio Hotel, 20 August 2018

Big data in Insurance

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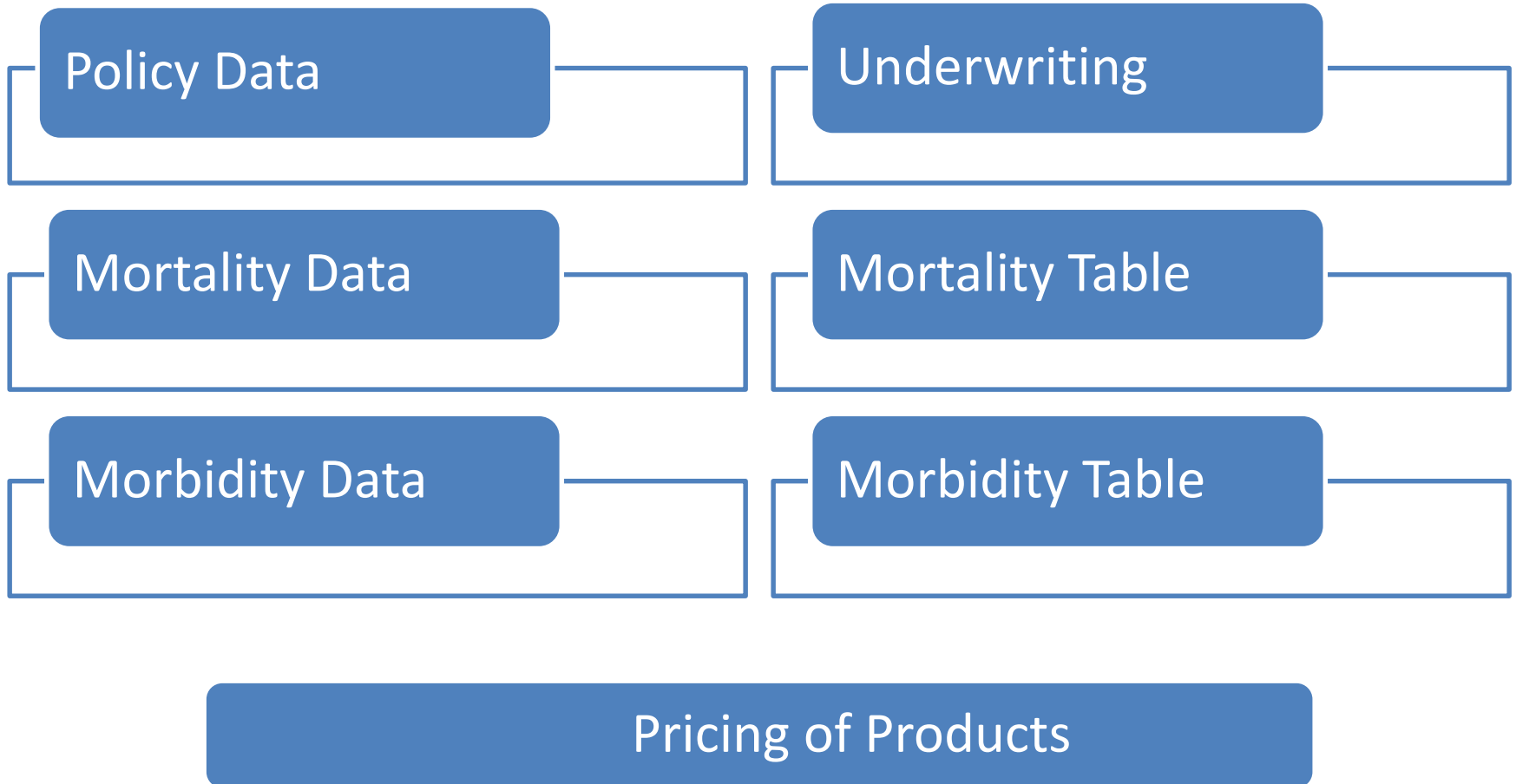Member wider areas for Actuaries

Institute of Actuaries of India
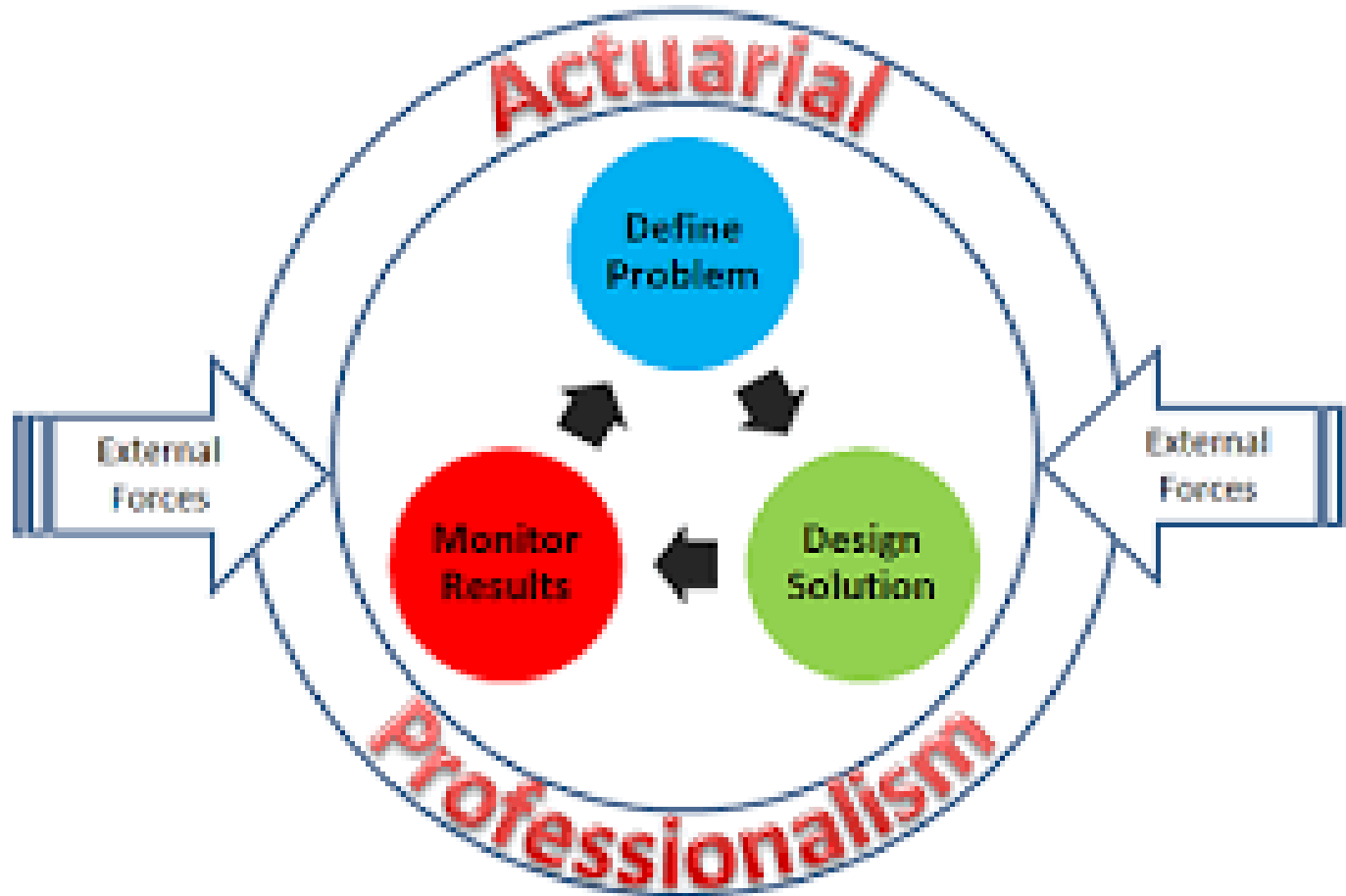
Big Data in Insurance

- Traditional Data and Usage
- Insure Tech
- Traditional Data Vs Big Data in Insurance
- How to use Big Data effectively ?
- Case in point
- Evolving regulatory framework
- Challenges in supervision
- Recommendations
- Regulations in place
- Summary

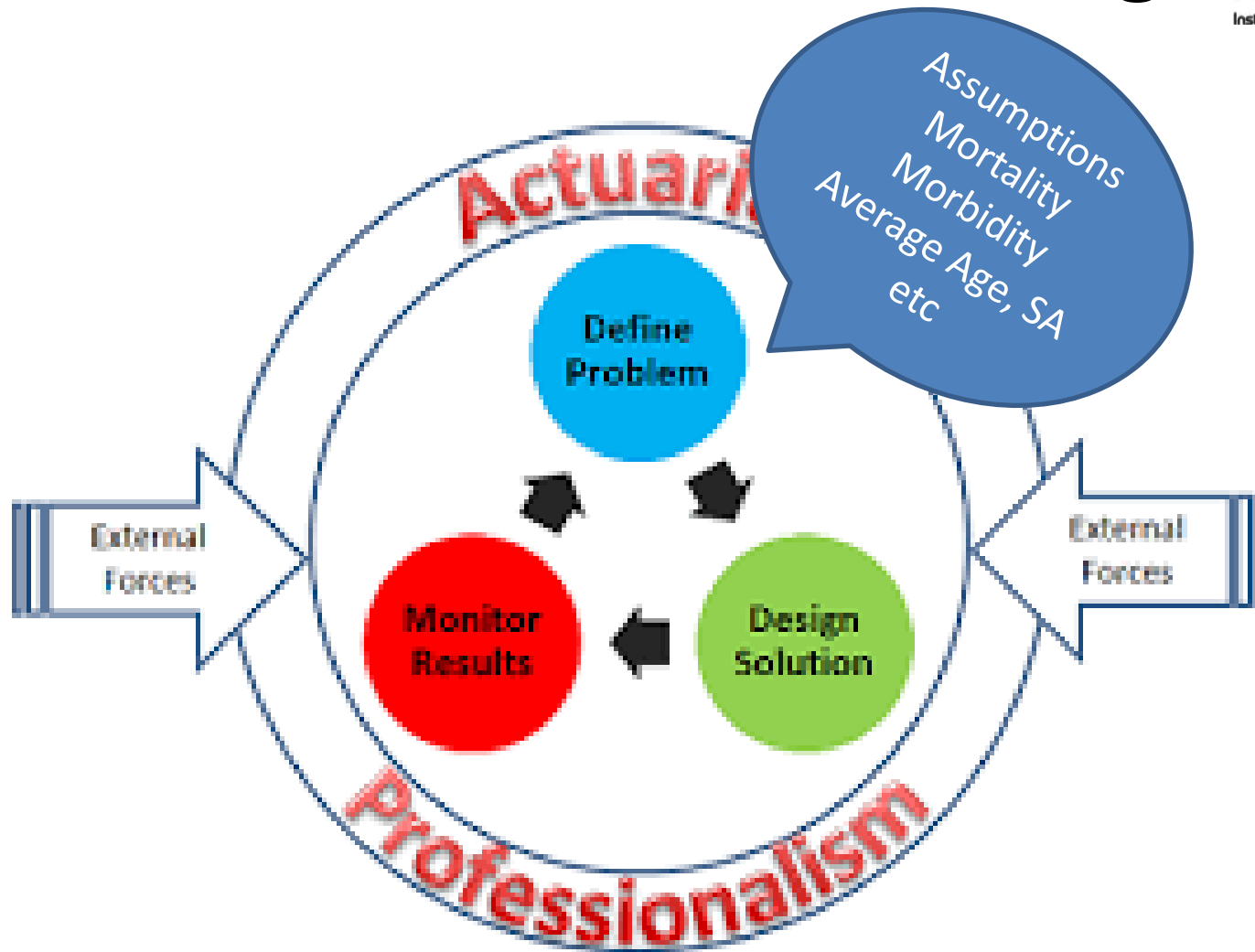# Traditional data and Usage

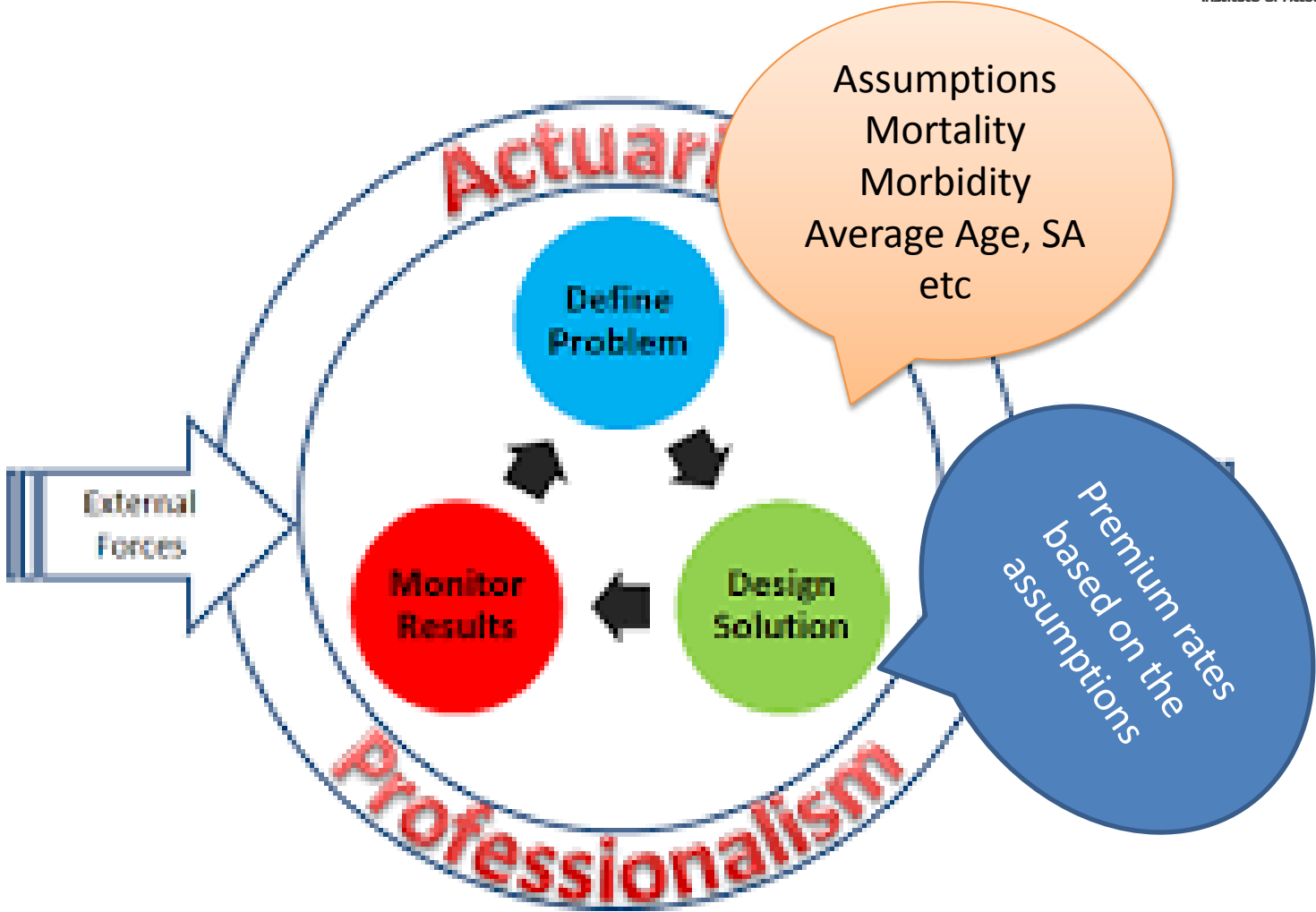| Policy Data	Underwriting
Mortality Data	Mortality Table
Morbidity Data	Morbidity Table

Pricing of Products
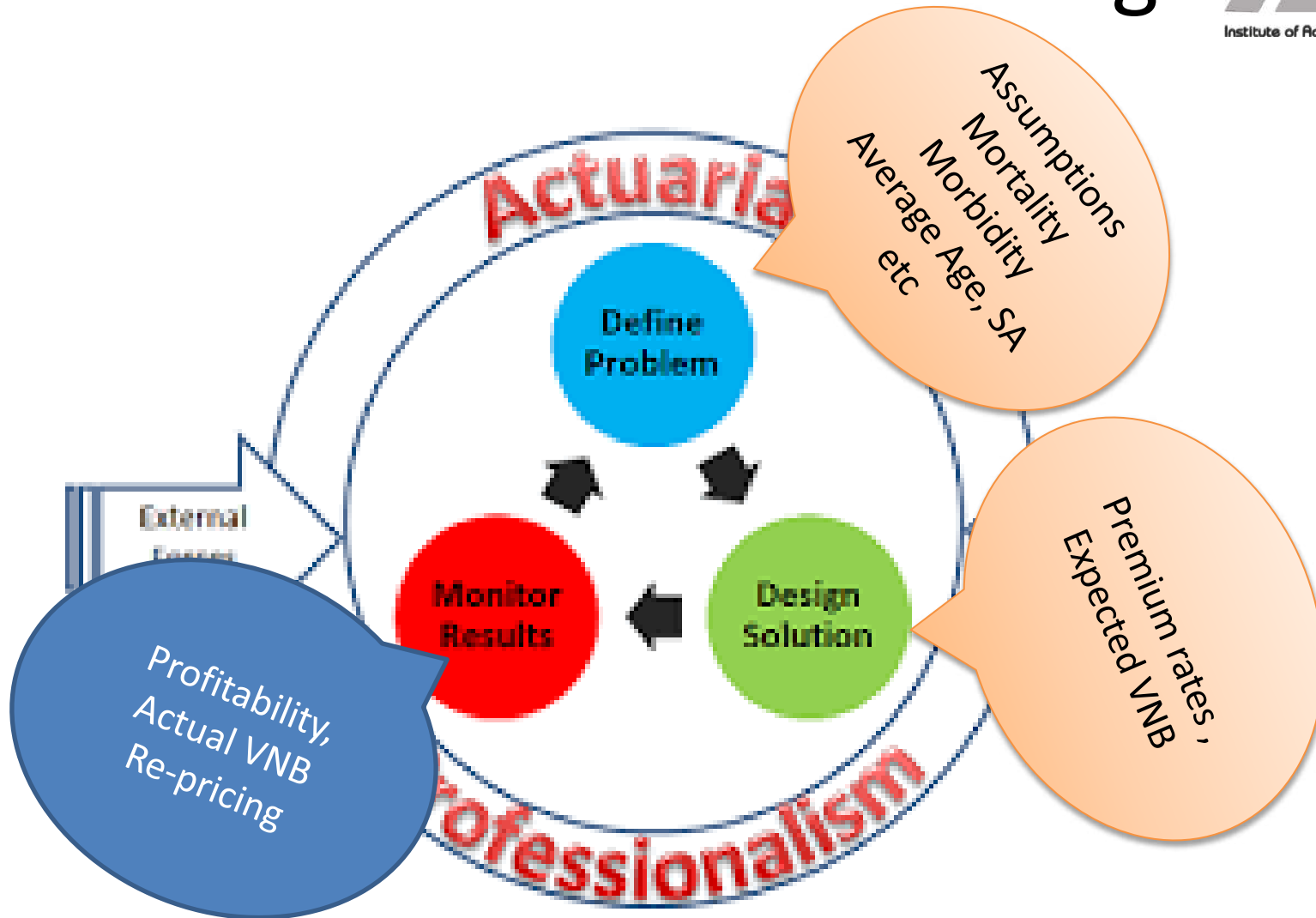
Traditional data and Usage

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Insure Tech

- Internet of things
- Block Chain
- Wearables
- Telematics
- Artificial Intelligence
- Machine Learning

Traditional Data Vs Big Data Life Insurance

Traditional Data	Big Data (Wearables)
Age, Gender, occupation, income	Steps and distance travelled and Life style
Medical exams	Sleep time, Heart rate, wake up time
Family history	Social media status e.g. food preference, smoking, adventure sports, Alcohol habits

Traditional Data Vs Big Data : Auto Insurance

Traditional data	Big Data (Telematics)
Age and Gender	Duration of trips, Connected Cars
Marital Status	Speed, Advanced Driver Assistance System (ADAS)
Credit History	Braking and acceleration
Vehicle Type	Date, Time and Location
Geographic Location, Driving record	Distance

Traditional Data Vs Big Data : Claims Management

Traditional data	Big Data
Claim form based analysis	Real time navigation assistance (GPS)
Surveyor report	Road side assistance
FIR	Lost vehicle recovery assistance

How to use the big data effectively ?

- How big data can transform Customer Satisfaction ?

  – A report from Capgemini says Insurers are facing a moment of truth. Customer satisfaction levels have hit worryingly low levels. Here is what they say about the use of big data effectively

  https://www.youtube.com/watch?v=CZc3WOB GKbQ

Case in point

Vitality UK offers options to customers to choose devices from multiple partners(e.g., Apple, Garmin, Fitbit, Nokia etc.).The insurer provides links to different device partners on its website. The device Partners in turn offer discounts to Vitality customers.

Case in point…

- There are examples of corporate houses having benefitted in getting discounts on their insurance premium as a result of their wellness programmes and tracking of fitness of their employees. For instance, Appirio, a San Francisco based cloud computing consultancy is said to have got **a 5% discount (amounting to US$300,000!)** on their insurance premium in 2014. So, apparently, wellness programmes do help in improving health parameters, and in turn have helped corporates get predetermined discounts.
- A study carried out by Vitality of South Africa revealed some interesting results:
  - Participation in health and fitness programmes reduces health claims by 16%
  - Logging fitness activities reduces risk by 22% for the unhealthiest category of participants
  - Participating members are upto 64% less likely to lapse their insurance than non-participants; and
  - Participating members have upto 53% lower mortality rate than non-participants.

Evolving Regulatory Framework

- New questions and challenges
- Innovations may disrupt the concept of pooling of risk
- Disrupt the Insurance business model and Insurance landscape.
- Current reporting requirements and/or framework to be redefined.

Challenges in Supervision..

- Need to
  - Ensure how innovation is applied
  - Balance between Innovation vs benefits to policyholders
  - adjust to the regulatory framework
  - arrange proper technical resources, knowledge and skills to be able to deal with the new innovations

Challenges in Supervision

- Serious risks to consider
  - Risk pool may shrink
  - Digitization may increase the risk of misinformation, fraud and abuse
  - Reliance on AI may reduce the transparency
  - Increased reliance on outsourcing
  - Capital requirements
  - Multiple jurisdictional oversight

Regulations in place

The Health Insurance Regulations 2016 takes into account Wellness and Preventive aspects and allows insurers to incentivize the customer-based on fitness and wellness criteria.

Post the regulations, many insurers have taken some initial steps and have introduced wellness features focusing on the overall health of the customer, rather than just providing financial support for episodic events.

Recommendations

Major Recommendations from the Regulator :

❖ **Risk Assessment and Risk Improvement**

- Using Big Data is good as long as it is
    - not against the interest of the policyholders
    - and the costs are not prohibitive.

- Insurers may be allowed to use technology that aids fraud detection

Recommendations

Major Recommendations from the Regulator :

❖ **Product Design and Pricing**

- Details of usage of Wearable/portable devices should be part of product filing.
- To be tested first in the sandbox environment
- Product pricing and premium review could be based on the inputs received from the data captured through the devices.

Recommendations ...

❖ **Data Related Aspects**

- The consent of the customer to share his data
- security and confidentiality of the data
- The outsourcing of monitoring and analysis of data
- Portability
- IIB could create the repository

Summary

- Big Data and advanced analytics have begun to yield big payoffs for a few insurance companies abroad and insurers globally plan to spend more on it over the next three to five years, yet most insurers have barely scratched the surface. Here is what the Bain survey says on the issue : https://youtu.be/oyU0T7NhLLs

- Big data is not a panacea of all that ails the traditional practices. However, used wisely, it is a solution that can drive significant benefits for the industry in its entirety, benefiting insurance companies, the public healthcare system, improving services and standards, reducing inefficiencies and finally by contributing to make services more affordable for the common man.

    https://youtu.be/cbtf1oyNg-8